



CHAPTER 9

MS – Excel Basics

9. MS – Excel Basics

9.1 Introduction to Excel

Microsoft Excel is a spreadsheet application developed by Microsoft for Microsoft Windows, Mac OS X, and Linux. It is used for storing, organizing and analyzing data. It features calculation, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications. Excel forms part of Microsoft Office.

9.1.1 Basic User Interface

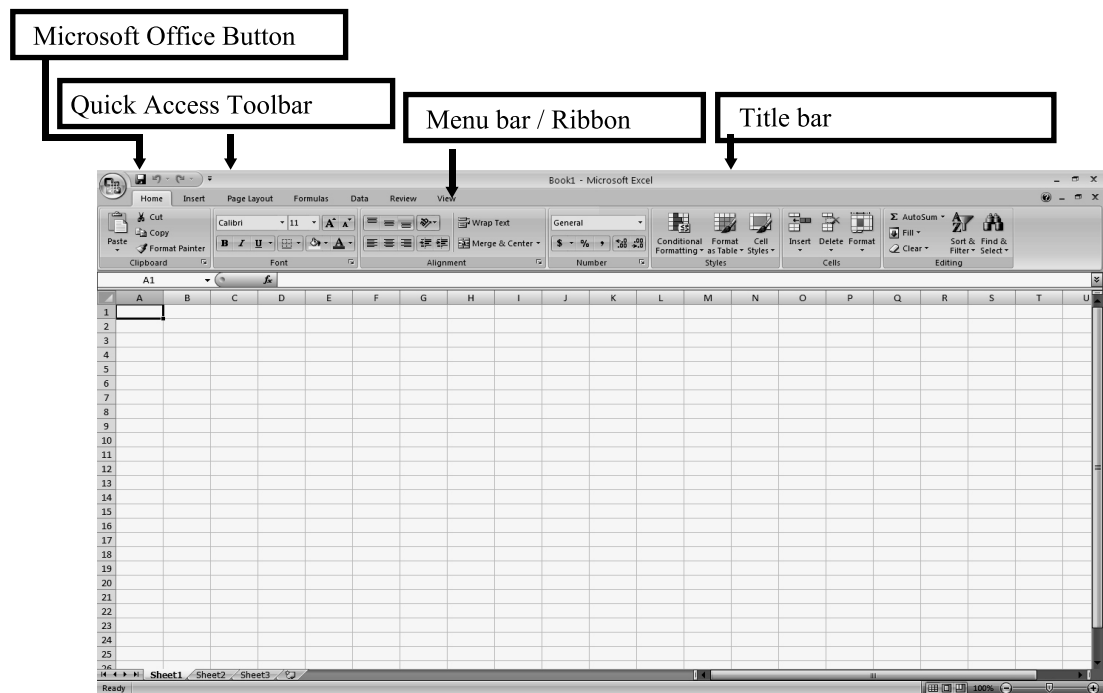


Figure 9.1: Excel 2010 Interface

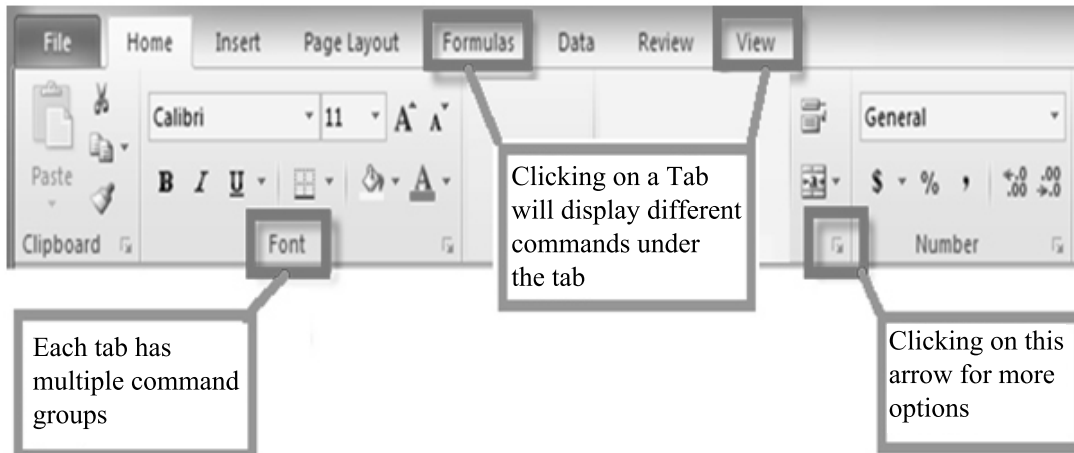


Figure 9.2 Excel 2010 Interface

Ribbon can also be customized by adding commands to new custom tabs/groups created using link shown in figure below.

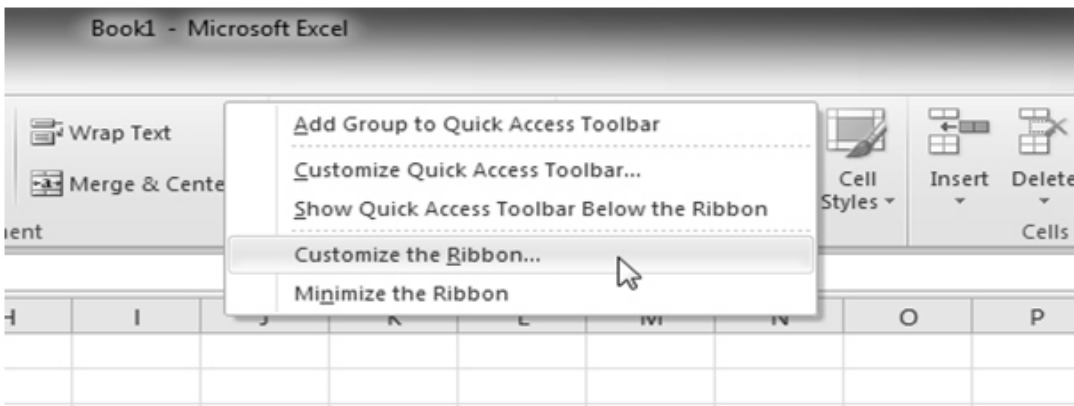


Figure 9.3 Customizing Excel Ribbon

To minimize or maximize the ribbon, click arrow on top-right corner as shown below:

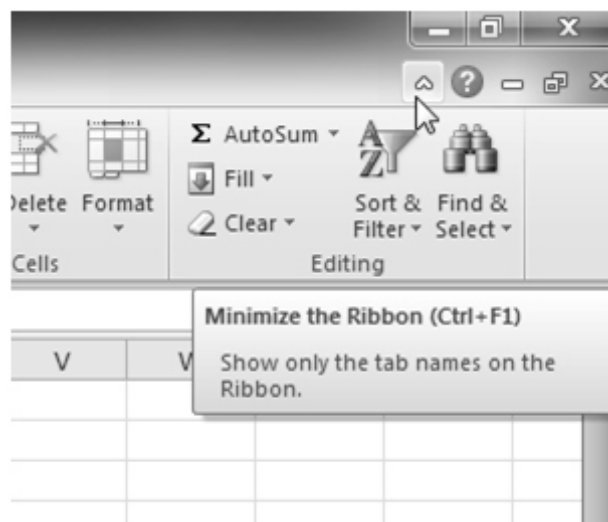


Figure 9.4 Maximizing or minimizing excel ribbon

One can move around the spreadsheet/cells by clicking your mouse on various cells, or by using the up, down, right and left arrow movement keys on the keyboard. Or, you can move up and down by using the “elevator” bars on the right and bottom of the spreadsheet.

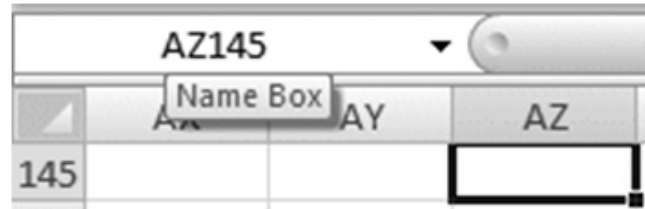


Figure 9.5 Moving in Excel Environment

There are hundreds of columns and thousands of rows in a spreadsheet. Anytime you desire to return to the Home Cell (A1) simply click-in the Name Box and type-in A1. Then tap the Enter key and you will go to cell A1. You can go to any cell by this method. Simply type-in a row and column, tap the Enter key, and you'll go to that cell.

9.1.2 Backstage View

After you click the File tab, you can see the Microsoft Office Backstage view. The Office Backstage view gives options for saving, opening, printing and sharing the document.

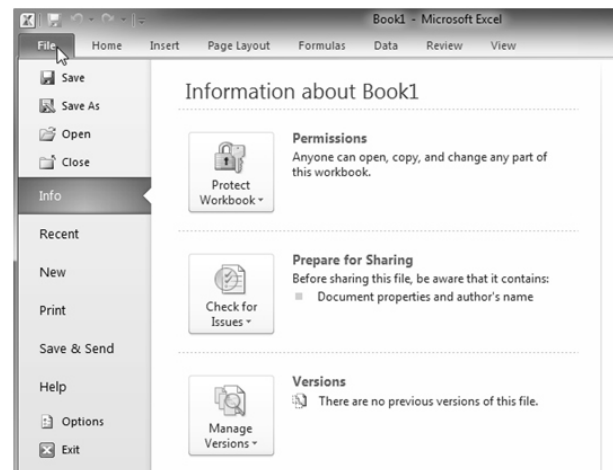


Figure 9.6 - Backstage view in Excel 2010

QUICK REVIEW

- What is Quick Access Toolbar?
- What are the different options in Backstage View?

9.2 Concept of Sheet and Workbook

An excel document is called workbook which consists of multiple worksheets and charts.

When you open MS Excel following the steps as explained above, a Workbook opens and by default contains three worksheets. One can have more than three worksheets as well, based on the need. To add more worksheet a shortcut combination of

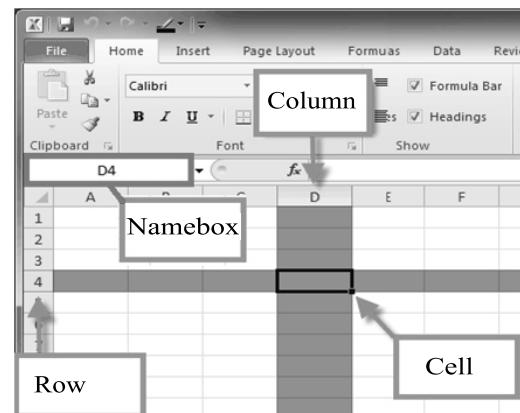


Figure 9.7 - Constituents of Workbook

Shift + F1 key is used, which adds one extra worksheet. In total there are **1,048,575** rows and **16,384** columns in a worksheet.

A cell is the smallest unit of MS Excel where we store data and it is basically the intersection point of row and column. For example, as shown in the figure 9.2.1 the top left most cell has the address **A1** {A is the column and 1 is the row number}.

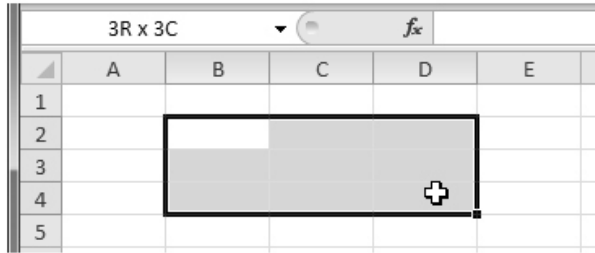


Figure 9.8 - Selecting multiple cells

To select a cell just click on the cell, Place your cursor in the first cell, A1. The formula bar will display the cell address in the Name Box on the left side of the Formula bar. Notice that the address changes as you move around the sheet. You can easily move from cell to cell by pressing tab or using the arrow keys.

To select more than one cell at a time click and drag with your mouse and entire range of cells that are selected will be highlighted.

A cell in MS Excel can contain any of the following items:

- A number (and any associated punctuation, such as decimal points, commas, and currency symbols).
- Textual content (including any combination of letters, numbers, and symbols that aren't number-related).
- A formula, which is a math equation.
- A function, which is a named equation that shortcuts an otherwise complex operation.

QUICK REVIEW

- What is the difference between a workbook and worksheet?
- What is a Cell?

9.3 Basic Excel

Creating a New Workbook in MS Excel

- a. Click on the **Start** button, click on **All Apps**, click **Microsoft Office**, and then
- b. Click **Microsoft Office Excel 2010** then click on **Microsoft Office Button**
- c. Click on **New** and then
- d. Click on **Blank Workbook** {by default Excel opens a blank workbook as well}

“Save” & “Save As”

By default excel will create new workbook in Excel 2010 (*.xlsx) format. After creating the

workbook it may be saved on the computer for accessing it later. To save a newly created workbook, Go to File Tab and select “Save As”

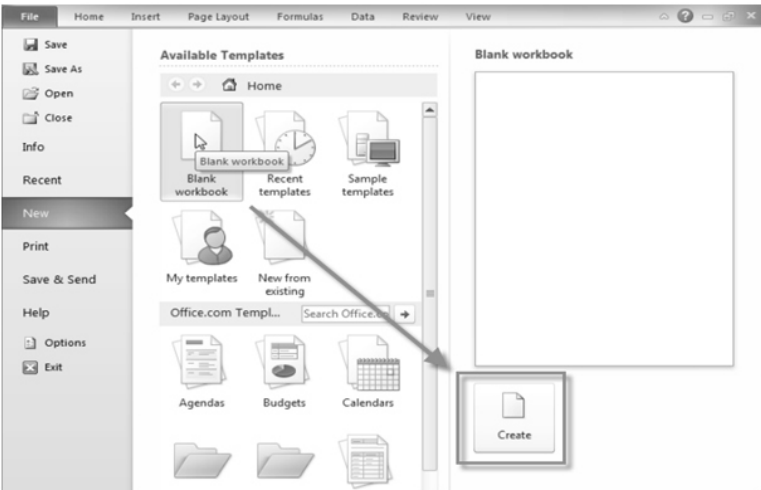


Figure 9.9: Creating a new workbook

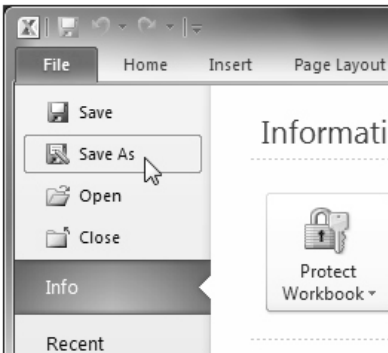


Figure 9.10: Save As

It will open a dialog box as shown below:

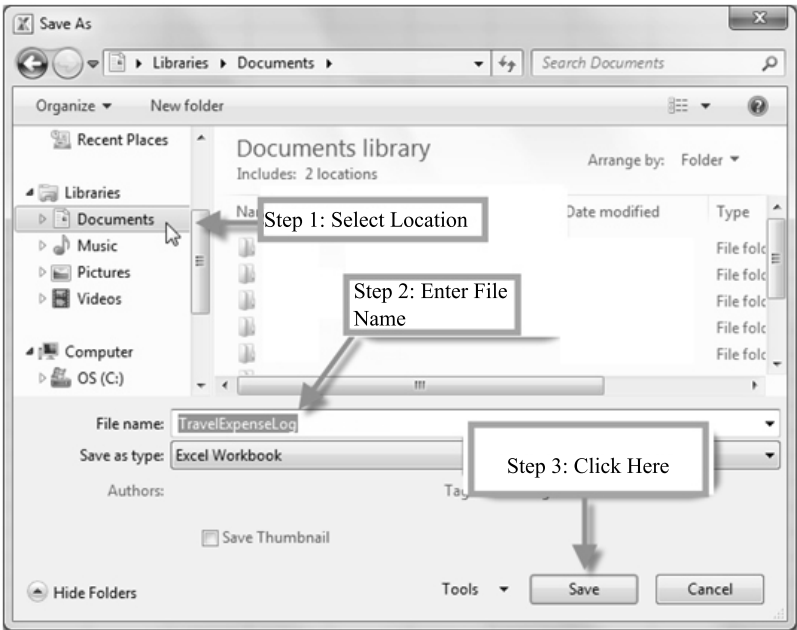


Figure 9.11: Save As dialog box

Follow the steps shown in the image and save the workbook at desired location with desired name. To save work done on an existing workbook, you need to click Save from Quick Access Toolbar or “Ctrl+S”

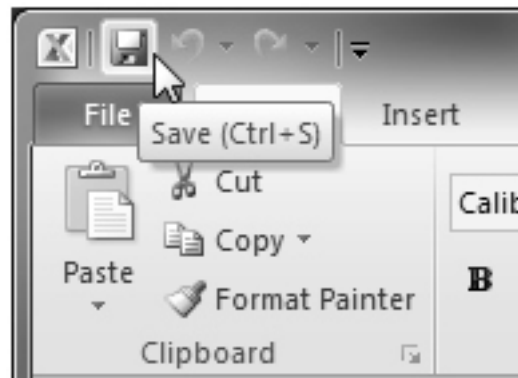


Figure 9.12: Saving work in Excel

USEFUL TIP

If you are saving for the first time and select save, the Save As dialog box will automatically appear.

By default, Excel 2010 AutoSaves every 10 minutes. If you are editing a workbook for less than 10 minutes, Excel may not create an AutoSaved version. To access AutoSaved version, go to backstage view and click on Info.

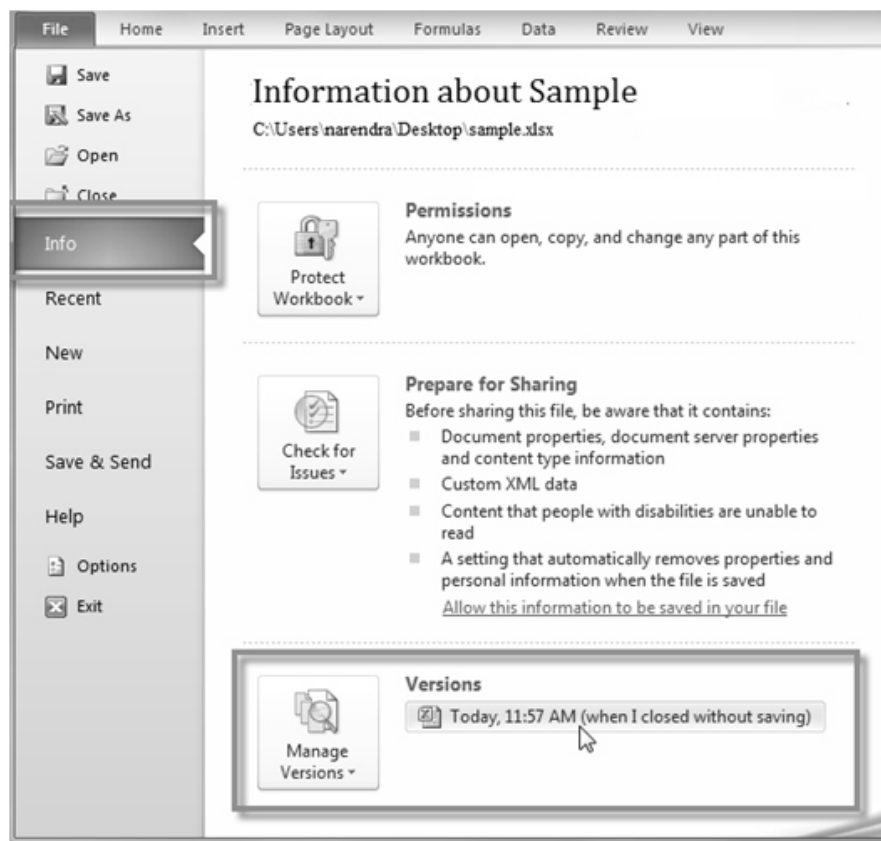


Figure 9.13: Managing versions of a workbook

USEFUL TIP

You can share your workbooks with users of Excel 2010 and 2007 without any compatibility issues as they use same file types (with extension **xlsx**) but previous versions of Excel use **xls** format. So, in order to share and open an excel workbook with users of previous versions you need to save the workbook as Excel 97-2003.

You can also save the workbook as a PDF file by using “Save as Type-PDF” available in “Save As” dialog box.

Opening using GUI and Shortcut

To open an existing file:

- a. Click on the **Start** button, click on **All Apps**, click **Microsoft Office**, and then
- b. Click **Microsoft Office Excel 2010** then click **Open**
- c. In the **Open dialogue box**, navigate to the folder which contains the desired file and then double click the file.

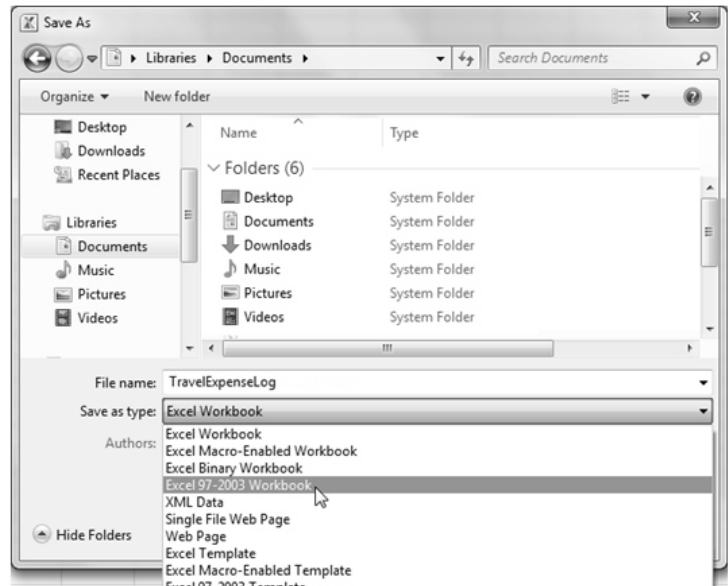


Figure 9.14: Different file types available in Save As

Creating a New Worksheet

It is very simple to create a new worksheet in MS Excel. As explained earlier, by default each new Excel Workbook contains three worksheets, as shown in figure below.

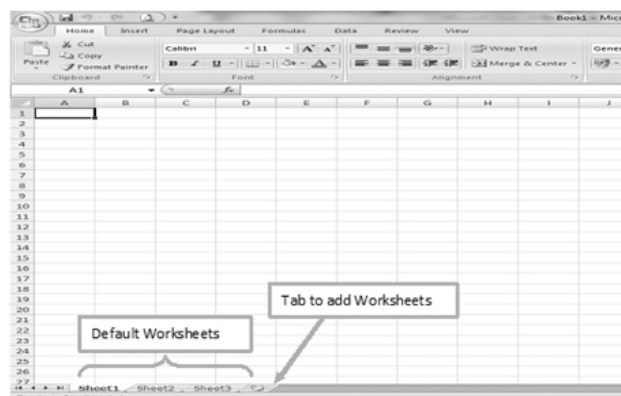


Figure 9.15: Worksheets

Three tabs displaying **Sheet 1**, **Sheet 2**, and **Sheet 3** will be displayed at the bottom of the workbook to indicate the separate sheets. To add a new worksheet, simply click on the tab after the tab that says Sheet 3.

You can also rename the worksheets by right clicking and selecting rename option as shown below:

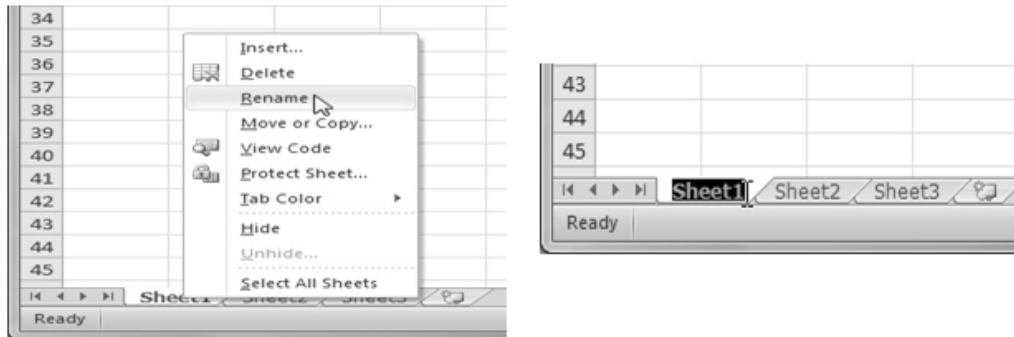


Figure 9.16: Renaming a worksheet

Similarly worksheets can be deleted, copied and moved to different position of same workbook or to a new workbook. Two or more worksheets can also be grouped, if you want changes in one worksheet to be reflected in multiple worksheets. In order to group worksheets, select the first worksheet, Press and hold CTRL, select other worksheets to be grouped and release CTRL.

Working with Columns, Rows and Cells using Tabs

A cell can be formatted using various command groups available under Home Tab. By default all columns and rows of a workbook/worksheet have same height and width. This may be changed as per user requirements using the Format option available under Home Tab as shown below:

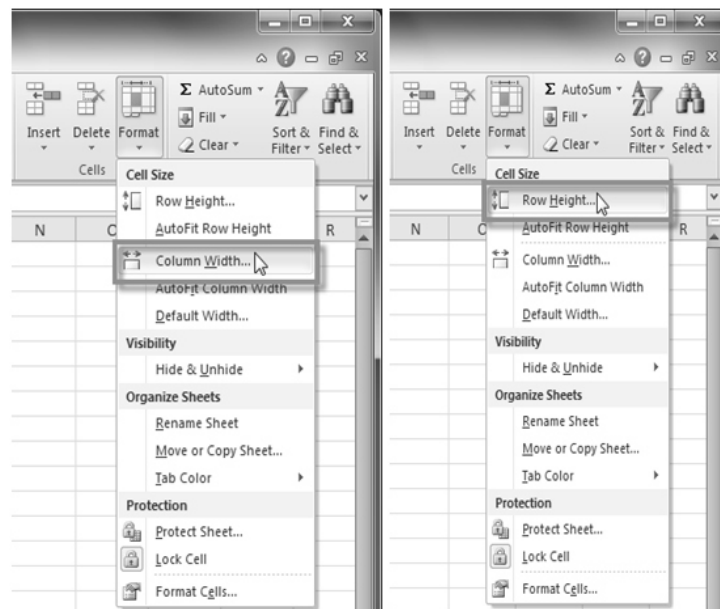


Figure 9.17: Increasing or decreasing row/column width/height

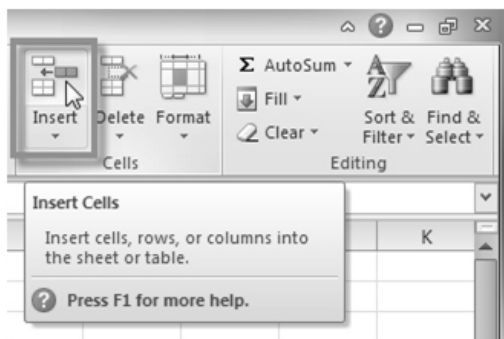


Figure 9.18: Inserting new row/column

New Rows, Columns or Worksheets may be inserted using Insert Menu available under Home Tab. Right clicking a particular row, column or worksheet will also show the options to insert new ones.

Similarly Rows, Columns or Cells may be deleted if required.

USEFUL TIP

Try following tips to save time while working in Excel:

Tip 1: To insert multiple new rows or columns, select X number of rows/columns and click on insert row/column to insert X number of rows/columns.

Tip 2: Either **CTRL A** or click on top left intersection of worksheet can select all the cells.

Tip 3: One can open excel files in bulk by selecting all and clicking on Enter button.

Tip 4: Diagonal line can be drawn a cell using Borders option.

Formatting of Cell content can be done using following options available under Home Tab:

- **Clipboard Group:** For copying and moving cell contents, format painter which copies formatting from one place to another this button can apply same formatting to multiple places in a document avoiding repetition of work etc.
- **Font Group:** Changing Font and Font size, Bold, Italic and Underline, adding borders, changing font color, adding fill color for a cell or group of cells.
- **Alignment Group:** Changing horizontal and vertical alignment of text, Wrapping and merging Text etc.

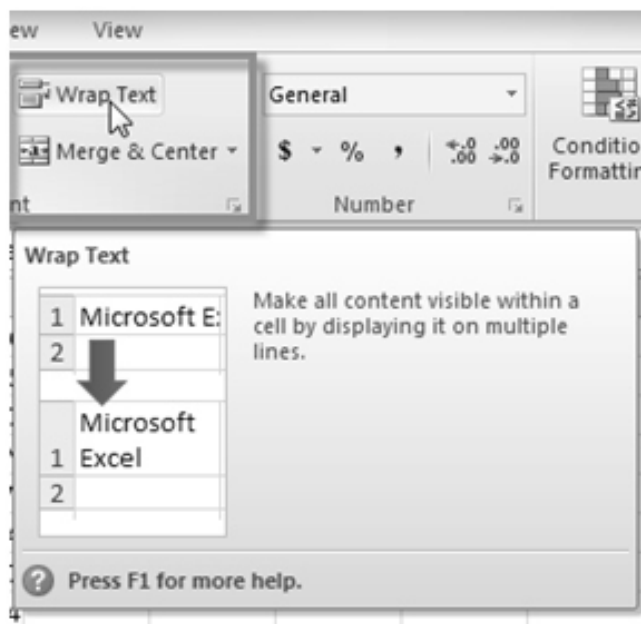


Figure 9.19: Wrap Text feature

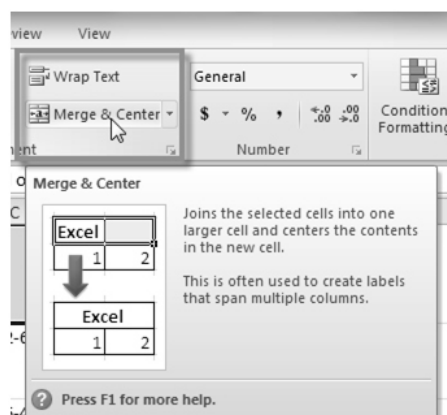


Figure 9.20: Merge Cell

Using Wrap Text feature, all the content of a cell may be made visible by displaying it in multiple lines as shown in figure below:

Merge Cell

To merge the cells, select the cells you want to merge and click on “Merge & Center”

Number Group

General format cells have no specific format. This is the

default format for all cells of a new workbook. When you enter a number or data in a cell, excel will automatically predict the format and apply it to the cell. For example, if you enter Jan 2016, it will automatically convert it to 1-Apr-2016 date format.

View Tab

Freeze Panes: Specific rows and columns can be frozen in a worksheet. Just frozen portion of the worksheet remains visible all the time and rest of the cells can be scrolled by using this feature.

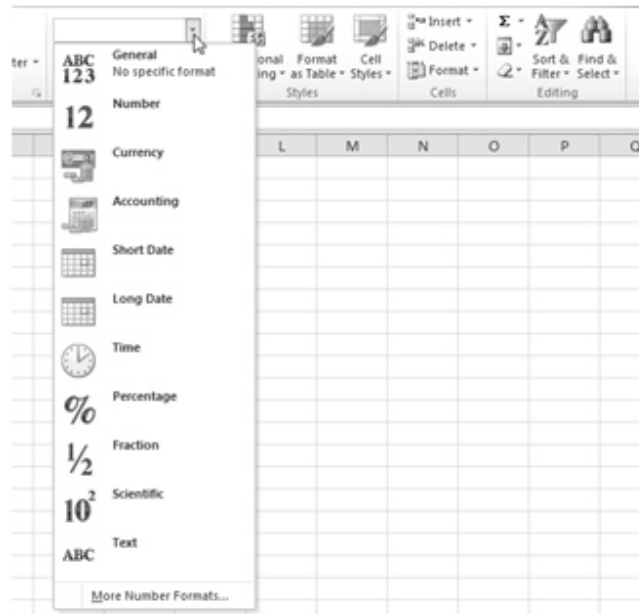


Figure 9.21: Different number formats

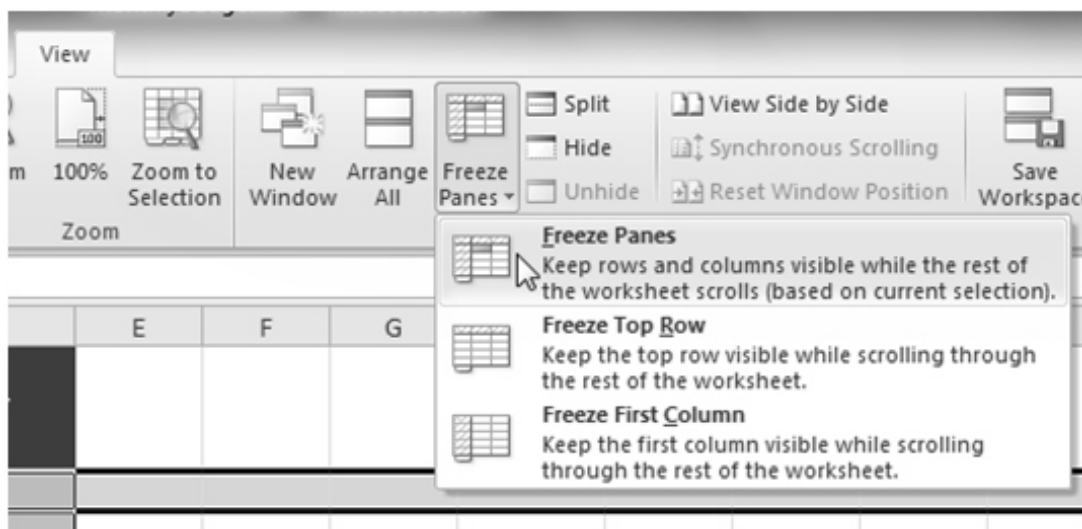


Figure 9.22: Freeze Panes option

USEFUL TIP

Using Split option available under View Tab, One can view and edit two different sections of the document simultaneously.

Page Layout Tab

Printing a Worksheet / Workbook: To print a worksheet - click on File Tab, select Print. Print settings will be displayed with Print Preview on the right side.

You can Select Printer, Print Range, whether to print on one side or both sides of paper (if

supported by your printer), Page Orientation (Landscape/Portrait), Page size, Margins and scaling before clicking on Print Button at the top. Most of these settings can also be done beforehand using Page Setup group available under Page Layout Tab.



Figure 9.23: Print Settings

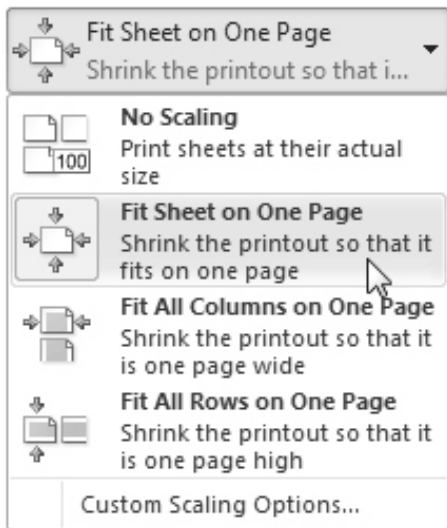


Figure 9.24: Scaling options for Printing

To fit all the contents on one page select option as shown below in Scaling. Similarly all columns and rows can also be fit on single page if required by user.

If you want a row/column to repeat on all pages, it can be done using Print Titles option available under Page Setup Group as shown below:

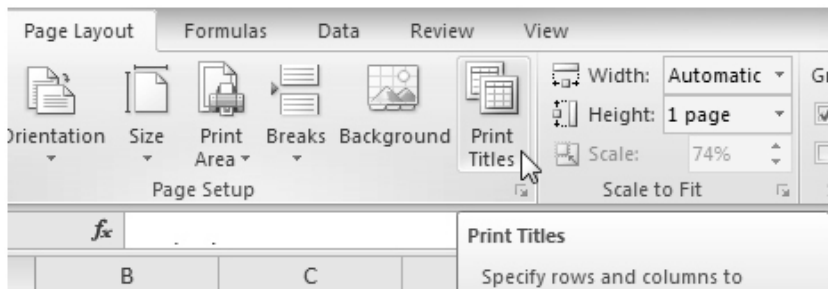


Figure 9.25: Print Titles in Excel

Page Breaks can also be inserted using Breaks command in Page Setup Group.

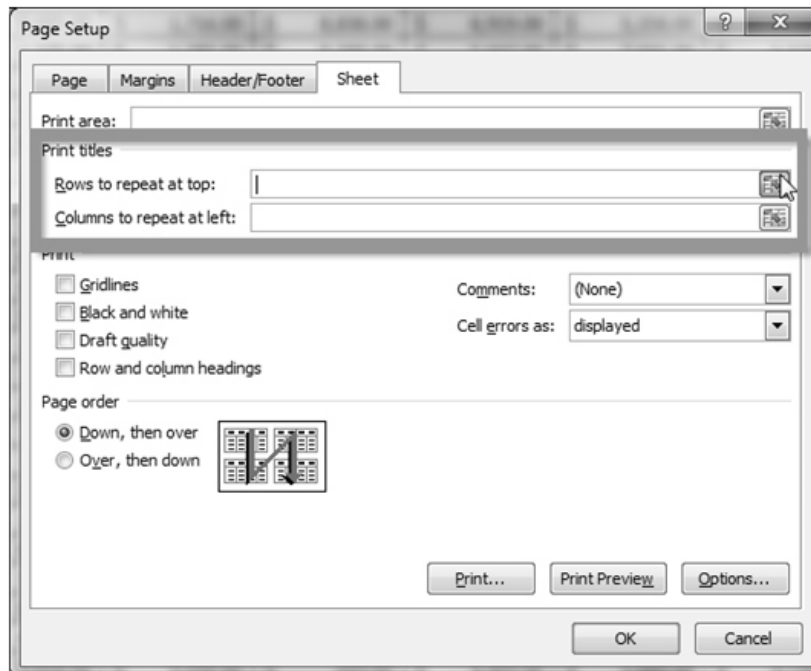


Figure 9.26: Page Setup Dialog box

USEFUL TIP

AutoFit Column Width in format drop-down menu will automatically adjust each selected column to fit the text in it.

QUICK REVIEW

- What is the use of Wrap text and Merge features?
- What is the need of freezing panes?
- How can you fit all columns of a sheet on single page while printing?

9.4 Sort & Filter

9.4.1 Sorting

Sorting basically organizes the data of your worksheet in a specific order. For example, list of students of a School may be sorted alphabetically or class-wise or roll number wise or in date of birth order or any other order.

Sorting in Alphabetical Order

- Select a cell in the column you want to sort (In this example, we choose a cell in column A).
- Click the Sort & Filter command in the Editing group on the Home tab.
- Select Sort A to Z. Now the information in the Category column is organized in alphabetical order.

Note: One can Sort in reverse alphabetical order by choosing Sort **Z to A** in the list.

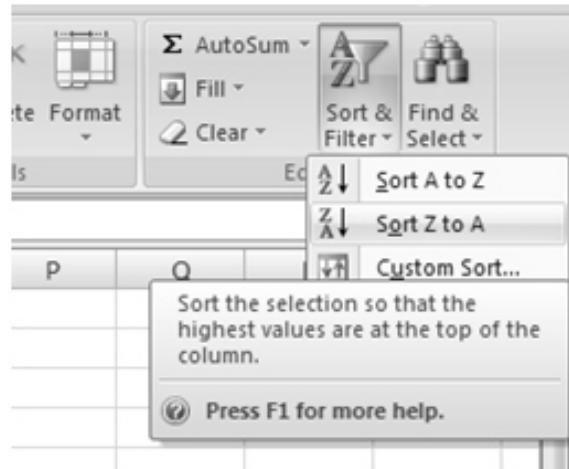


Figure 9.28: To sort in alphabetical order (Z to A)



Figure 9.27: To sort in alphabetical order (A to Z)

To Sort from Smallest to Largest

- Select a cell in the column you want to sort (a column with numbers).
- Click the Sort & Filter command in the Editing group on the Home tab.
- Select From **Smallest to Largest**. Now the information is organized from the smallest to largest amount.

Note: One can sort in reverse numerical order by choosing From **Largest to Smallest** in the list.

To Sort at Multiple Levels

- Click the Sort & Filter command in the Editing group on the Home tab.
- Select Custom Sort from the list to open the dialog box.

OR

- Select the Data tab.
- Locate the Sort and Filter group.
- Click the Sort command to open the Custom Sort dialog box. From here, you can sort by one item or multiple items.

- Click the drop-down arrow in the Column Sort by field, then choose one of the options—in this example, Category.

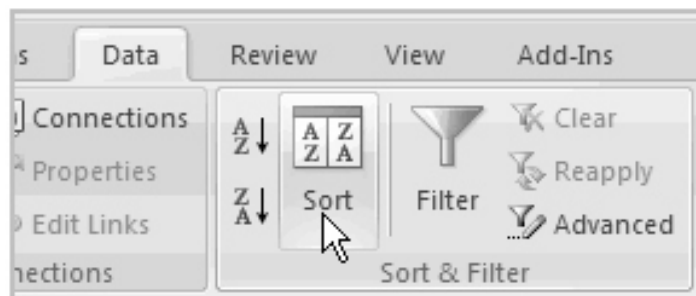


Figure 9.29: Sort command in Excel



Figure 9.30: Custom Sort dialog box

- Choose what to sort on. In this example, we'll leave the default as Value.
- Choose how to order the results. Leave it as A to Z so it is organized alphabetically.
- Click Add Level to add another item to sort by.
- Select an option in the Column Then by field. In this example, we chose Unit Cost.
- Choose what to sort on. In this example, we'll leave the default as Value.
- Choose how to order the results. Leave it as smallest to largest.
- Click OK.

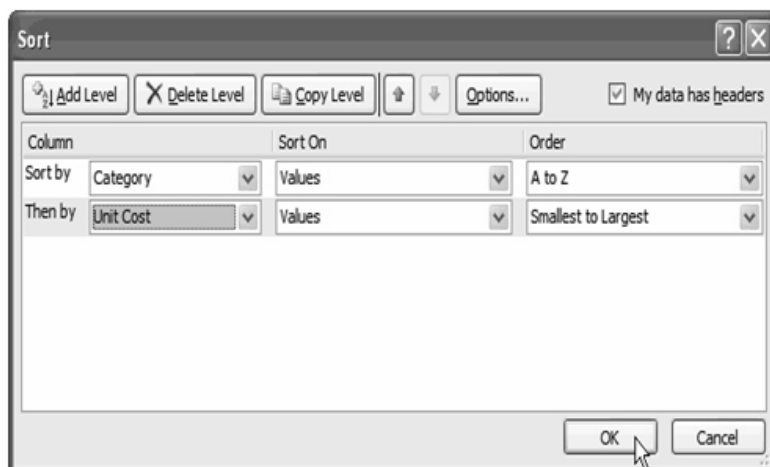


Figure 9.31: Custom sorting in Excel

9.4.2 Filtering

Similarly filtering feature can be used to narrow down the results and display only limited data as per requirement. For example if you want to display only those rows which contains data of students who have scored more than 70 marks in a subject, data can be filtered using marks column.



Figure 9.32: Filtering data in excel

QUICK REVIEW

- What is the difference between Sorting and Filtering?
- How to sort dates from oldest to newest?
- How to filter data in worksheet?

9.5 Basic Formulas and Functions

Formulas are equations that perform calculations on values in your worksheet. The basic formulas in MS excel are:

- Addition (+)
- Subtraction (-)
- Multiplication (*)
- Division (/)

To perform a simple calculation, just introduce a formula by adding equals to (=) symbol followed by calculation to be done. For example, for addition (=5+79) will give result 84 in the cell. Similarly multiple operations can also be done in a single formula like (=5+89*56/8)

Formula may also use cell reference in place of actual value or number. To introduce a formula with cell references just add equals to (=) symbol followed by cell co-ordinates and associated operation, as shown in the figure below:

To edit a formula, click on a cell, associated formula will be displayed in formula box. Change the formula and press enter.

Excel has some pre-defined formulas called as Functions.

Advantage of functions is that you need not write formulas and it will save a lot of time.

Sample syntax of an addition function is shown below:

=SUM(B1, B2, B3)

This will give addition of values available in cells B1, B2 and B3. SUM is the function and content within brackets is called an argument. Similarly there are many functions which can be used for calculations in excel sheet. You can explore functions in the Function library available under Formulas Tab.

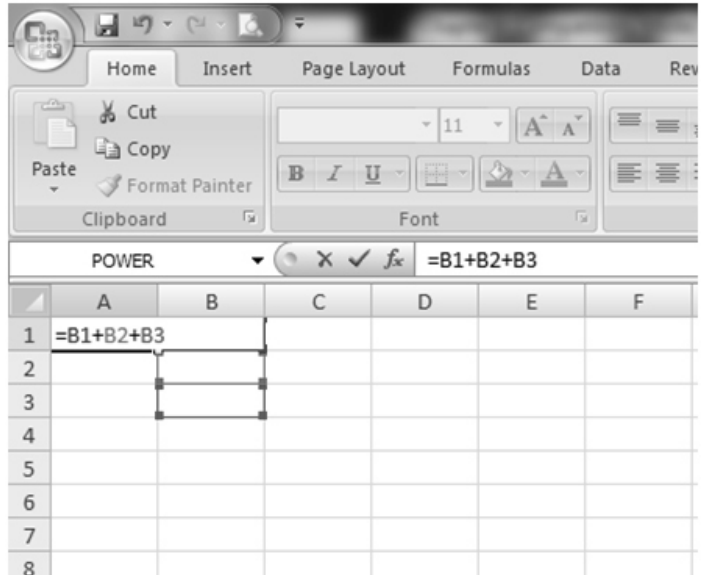


Figure 9.33: Addition operation

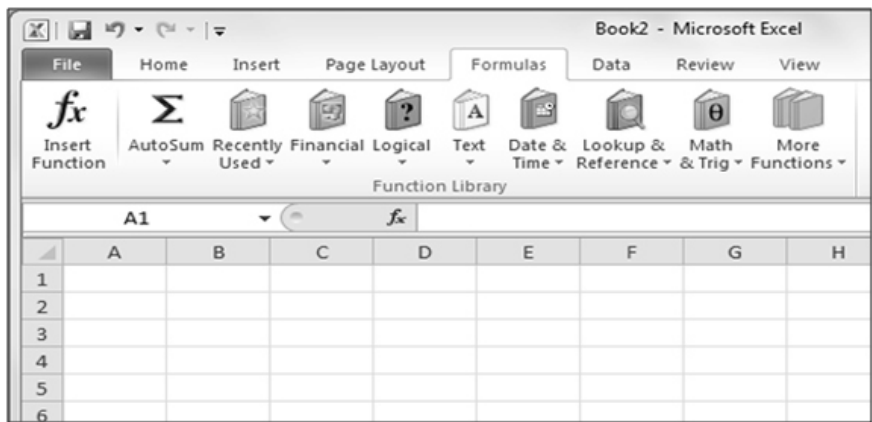


Figure 9.34: Function Library under Formulas Tab

| Function | Result |
|--------------------|--|
| SUM | Adds values of all the cells in argument |
| AVERAGE | Returns average of values of all the cells in argument |
| COUNT | Counts number of items in a cell range |
| COUNTIF | Counts number of items if a criteria mentioned is fulfilled |
| MAX | Returns maximum value out of all the cells selected in argument |
| MIN | Returns minimum value out of all the cells selected in argument |
| CONCATENATE | Joins two or more text strings |
| LEFT | Returns specified number of characters starting from left of a string |
| RIGHT | Returns specified number of characters starting from right of a string |
| LEN | Returns length of a text string |
| TRIM | Removes duplicate spaces and spaces at the start and end of a text string |
| LOWER | Converts all the characters of a text string to lowercase |
| UPPER | Converts all the characters of a text string to uppercase |
| VLOOKUP | Looks up a value in the first column of a table and returns the corresponding value from another column (may be in different worksheet/workbook) |
| ROUND | Rounds a number to given number of digits |
| ROUNDDOWN | Rounds a number towards zero to given number of digits |
| ROUNDUP | Rounds a number away from zero to given number of digits |

Table 9.1 Common Basic Functions

USEFUL TIP

If the result of a formula is too large to be displayed in a cell, it will appear as ##### instead of a value which means column is not wide enough to display the cell content. To show the cell content, simply increase the column width.

Excel formula result can be converted to static text using paste special feature and pasting it as value.

QUICK REVIEW

- What is the difference between formula and function?
- What is the use of VLOOKUP function?
- What are the logical functions?

Multiple Choice Questions

1. An excel workbook is a collection of-
 - a. Workbooks
 - b. Worksheets
 - c. Charts
 - d. Worksheets and charts
2. Which of the following will not complete a cell entry?
 - a. Pressing enter while typing in a cell
 - b. Pressing any arrow key on the keyboard
 - c. Pressing the Enter button on the Formula bar
 - d. Pressing spacebar
3. The name box-
 - a. Shows the location of previously active cell
 - b. Appears to the left of formula bar
 - c. Appears below the status bar
 - d. Appears below the menu bar
4. To copy formatting from one area in a worksheet and apply it to another area you would use:
 - a. The Home>Copy and Home>Paste commands
 - b. Using CTRL+C and CTRL+V Option
 - c. There is no way to copy and apply formatting in Excel
 - d. The Format Painter button on the standard toolbar
5. To hold row and column titles in place so that they do not scroll when you scroll a worksheet click the-
 - a. Unfreeze panes command
 - b. Freeze panes command
 - c. Hold titles command
 - d. Split command
6. To create a formula, you can use-
 - a. Values but not cell references
 - b. Cell references but not values
 - c. Values or cell references although not both at the same time
 - d. Value and cell references
7. Extensions of Excel 2003, Excel 2007 and Excel 2010 file are-
 - a. xlsx, xls and xltx
 - b. docx, doc and docm
 - c. xls, xlsx and xltx
 - d. xls, xls and xlsx
8. The Paste Special command lets you copy and paste-
 - a. Multiply the selection by a copied value
 - b. Cell comments
 - c. The resulting values of a formula instead of the actual formula
 - d. None

9. Which of the following methods cannot be used to edit the contents of a cell?
- a. Press the Alt key
 - b. Clicking the formula bar
 - c. Pressing the F2 key
 - d. Double clicking the cell
10. When you copy a formula-
- a. Excel erases the original copy of the formula
 - b. Excel edits cell references in the newly copied formula
 - c. Excel adjusts absolute cell references
 - d. Excel doesn't adjust relative cell references